



ABSTRACT

The steering apparatus comprises a helm pump (10) that can be rotated either in forward or reverse direction by operating a steering wheel (13) and discharges a liquid of a quantity proportional to the rotating angle, and the double action cylinder means that moves a rudder (27) and is provided on rudder (27) side of the ship, with the helm pump (10) and a double action cylinder being connected with the hydraulic circuit of fully closed construction, so as to move the rudder (27) by an amount corresponding to the amount of liquid discharged from the helm pump (10), wherein a second pump that generates discharging pressure in the same direction as the discharging direction from the helm pump (10) against the resistive pressure generated by the rotation of the helm pump (10) due to the operation of the steering wheel (13) is installed in series in part of the fully closed hydraulic circuit, so that the steering resistance of the steering wheel (13) is automatically reduced by the action of the second pump.

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